

- MODULE OBJECTIVES
 - Explain Why a Radiological Survey Must Be Performed
 - Select the Proper Equipment to Perform Various Types of Surveys
 - Perform Radiological Surveys
 - Develop A Survey Map
 - Properly Document All Actions Performed

Two Types:

- Radiation Survey
 - -Performed to Ensure That Personnel Exposure Levels Are As Low As Reasonably Achievable (ALARA)
 - To Assess or Detect Exposure Levels From Either a Removable or Fixed Source

- Radiation Survey
 - Survey Performed To Detect The Amount Of Radiation Present
 - Type Of RADIAC: AN/PDR-77, AN/VDR-2, or Equivalent
 - Document Survey On A Radiological Survey Form



Radiological Surveys (cont'd)

- Contamination Surveys
 - Removable Contamination
 - -surface contamination, which can be easily removed
 - Fixed Contamination
 - Surface contamination which is quite firmly attached

Prior to Performing a Radiation Survey

- Ask Yourself
 - Why Am I Performing the Survey
 - What Type(s) of Radioactive Material Are Present
 - What Types of Radiation Do These Materials Emit
 - Has There Been a Radiation Survey Conducted Previously

Obtain Appropriate Tools

- Survey Form(s), Clipboard, Pen
- Dosimetry (if required)
- RADIAC, Ensure Pre-operational Tests Are Performed
 - Check Calibration
 - Check For Damage
 - Check Batteries
 - Perform Response Test With Radioactive Source

Performing a Radiation • Turn the Power On

- Use the Audible Indicator
- Obtain a Background Reading
- Take Sufficient Readings
 - Entrance
 - Maximum Radiation Level in the Storage Area
 - Radiation Level at Accessible Points Outside the Storage Area

Performing a Radiation

Survey



General Area Readings

Contact Readings On Storage Locker



Documenting A Radiation Survey

- Document all readings
 - Background
 - General Area
 - Contact
- Sketch That Depicts the Area Surveyed
 - Entrance
 - Locker/Storage Location

Performing A Removable

Contamination Survey Performed to Detect Loose

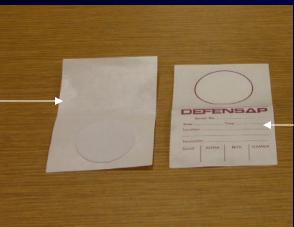
- Performed to Detect Loose Contamination
- Measurement Is Made by Using Smears
- The Surface Is Wiped in a S-shaped Pattern (Approx. 100cm2)

Performing A Removable Contamination Survey

- Removable Contamination Survey
 - Performed to Detect the Presence of Removable Contamination
 - Test Usually Done With Certain Types Of Filter Paper
 - NUCON For Gross Alpha/Beta
 - Metricel For Tritium And Nickel-63
 - Use Normal Pressure And Wipe The Area In A S-shaped Pattern (Approx. 100cm2)

Contamination Survey

NUCON Wipes



OutsideProtective Jacket



NUCON Wipe



Performing Alpha/Beta Contamination Survey

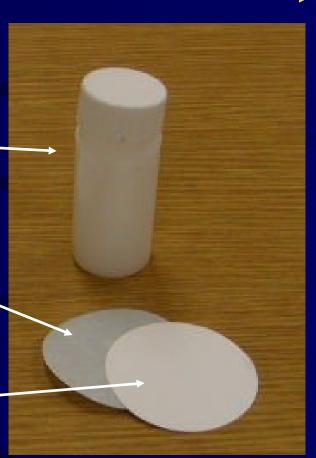
Contamination Survey (Tritium and Nickel-63)

Place the Wipe in the Vial——

Protective Blue Separator

Don't Use The Blue!

Metricel Wipe



Best Place To Take A Sample

- Your Workspace/maintenance Bench
- Storage Shelving
- Well-traveled Areas of the Floor
- Floor Drains
- Places Where People Commonly Place Their Hands

Fixed Contamination Survey

- Beta/Gamma Pancake Type Probe, or Thin Walled Geiger Tube (DT-695)
- Alpha DT696 Alpha Probe
- Measure the Background Well Away From the Surface to Be Monitored
- Pass the Detector Slowly Across the Surface
- Rule-of-thumb Is To Move the Probe Approximate One Probe Width Per Second

Which One is Correct?





Documenting Your Contamination Survey

- Sketch the Area and Location of the Wipes
- List the Wipes on the Wipe Test Analysis Request Form
- Send the Form and Wipes to the CECOM Laboratory at Fort Monmouth for Counting

SURVEYING WITH A MICRO-R METER

- Is Very Sensitive to Gamma Radiation
- Energy Dependent
- Used to Locate a Missing Gamma Source
- Not Calibrated, Use for Indication Only



SURVEY FILES

- Records of Surveys Are Legal Documents
- Maintain Records on File for Three Years
- Files Should Contain the Results of Wipe Tests and Radiation Dose Rates

Radioactive Material Storage Areas

- Postings
 - Two On The Door
 - -NGB Placard
 - -Caution Radioactive Mater





Radioactive Material Storage Areas

- Postings
 - Two On The Safety Board (Break Room, etc..)
 - -Public Law (Section 206)
 - -NRC Form 3

PART II. ENERGY REORGANIZATION ACT OF 1974 PUBLIC LAW 93-438 [H.R. 115101 (88 STAT. 1233] NONCOMPLIANCE

Sec. 206. (a) Any individual director, or responsible officer of a firm constructing, owning, operating, or supplying the components of any facility, or activity which is licensed or otherwise regulated pursuant to the Atomic Energy Act of 1954 as amended, or pursuant to this Act, who obtains information reasonably indicating that such facility or activity or basic components supplied to such facility or activity

- fails to comply with the Atomic Energy Act of 1954, as amended, or any applicable rule, regulation, order, or license of the Commission relating to substantial safety hazards, or
- (2) contains a defect which could create a substantial safety hazard, as defined by regulations which the Commission shall promulgate, shall immediately notify the Commission of such failure to comply, or of such defect, unless such person has actual knowledge that the Commission has been adequately informed of such defect or failure to comply.
- (b) Any person who knowingly and consciously fails to provide the notice required by subsection (a) of this section shall be subject to a civil penalty in an amount equal to the amount provided by section 234 of the Atomic energy Act of 1954, as amended.
- (c) The requirements of this section shall be prominently posted on the premises of any facility licensed or otherwise regulated pursuant to the Atomic energy Act of 1954, as amended.
- (d) The Commission is authorized to conduct such reasonable inspections and other enforcement activities as needed to insure compliance with the provisions of this section.

NRC From 3 (Nines) UNITED STATES NOT LEAR MISCLE ATORY COMMISSION Working DC 2003-0811

NOTICE TO EMPLOYEES

STANDARDS FOR PROTECTION AGAINST RADIATION (PART 20); NOTICES; INSTRUCTIONS AND REPORTS TO WORKERS; INSPECTIONS (PART 19); IMPLOYIGE PROTECTION



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Cateway Plant Site in Missouri and Grant Gulf Plant Site in Mississept are under the purview of Region IV.
 The Padician Grassous Diffusion Plant in Suntantity is under the purview of Region III.

Summary

- The Army and Federal Regulations Require Radiological Surveys
- Types of Radiological Surveys
 - Radiation
 - Contamination
 - Removable
 - Fixed
- Prior to Performing Survey
 - Gather Information
 - Obtain Supplies
 - Perform Pre-operational Test

- Performing a Radiation Survey
 - Background Measurements
 - General Area Measurements
 - Contact Measurements
- Performing a Removable Contamination Survey
 - Nucon
 - Metricel
 - 100cm2
 - Complete Wipe Test Analysis Request Form
 - Send Sample to CECOM

- Performing a Fixed Contamination Survey
 - Alpha
 - DT669 Alpha Probe
 - Beta/gamma
 - DT695, Pancake Probe
 - Audible Indication On
 - Move Detector Slowly

- Documentation
 - Survey Map
 - Wipe Test Results
 - Calibration Certificates
 - Response Test Log(s)
 - Maintain Records for 3 Years

- Postings
 - Two on the Door
 - Caution Radioactive Material
 - NGB Placard
 - Two on the Safety Board
 - Public Law Section 206
 - NRC Form 3

Radiation Surveys

Questions

Forms